CHAPTER 2 VOLATILITY IN PETROLEUM MARKETS

After a long lull brought about by consistently low prices, recent years have seen renewed attention focused on the oil industry in response to extreme volatility in global oil markets. This focus culminated in President Clinton's decision to release oil from the nation's Strategic Petroleum Reserve in October 1999, and the emergence of oil policy as an issue in the 2000 Presidential campaign. Locally, the impact of higher prices was eclipsed by the tragic explosion of the Olympic Pipeline in Bellingham, but consumers are still paying gasoline prices that are 50% higher than they were just two years ago.

This chapter describes the events that have affected crude oil and gasoline prices faced by Northwest consumers in recent years. It also discusses the supply effects of the Olympic Pipeline explosion and the trend toward mergers of large oil companies and its ramifications for Northwest markets.[1]

Gasoline prices

Gasoline prices began to rise early in 1999. As Figure 9 shows, prices in Washington and nationwide had been declining relatively steadily since May 1996. In fact, the average U.S. gasoline price in 1998 was the lowest of any year in history in inflation-adjusted terms. Washington gasoline prices bottomed out in February of 1999, averaging $1.10 statewide during that month, but jumped by over 30¢ per gallon by April 1999.

Sudden gasoline price increases are not uncommon during that time of year. Inventories tend to be low as refineries are turning their attention from heating oil to gasoline. Temporary shortages can be exacerbated by crude oil prices that are perceived to be unsustainably high; if prices are expected to fall during the next several months, refiners will attempt to avoid building

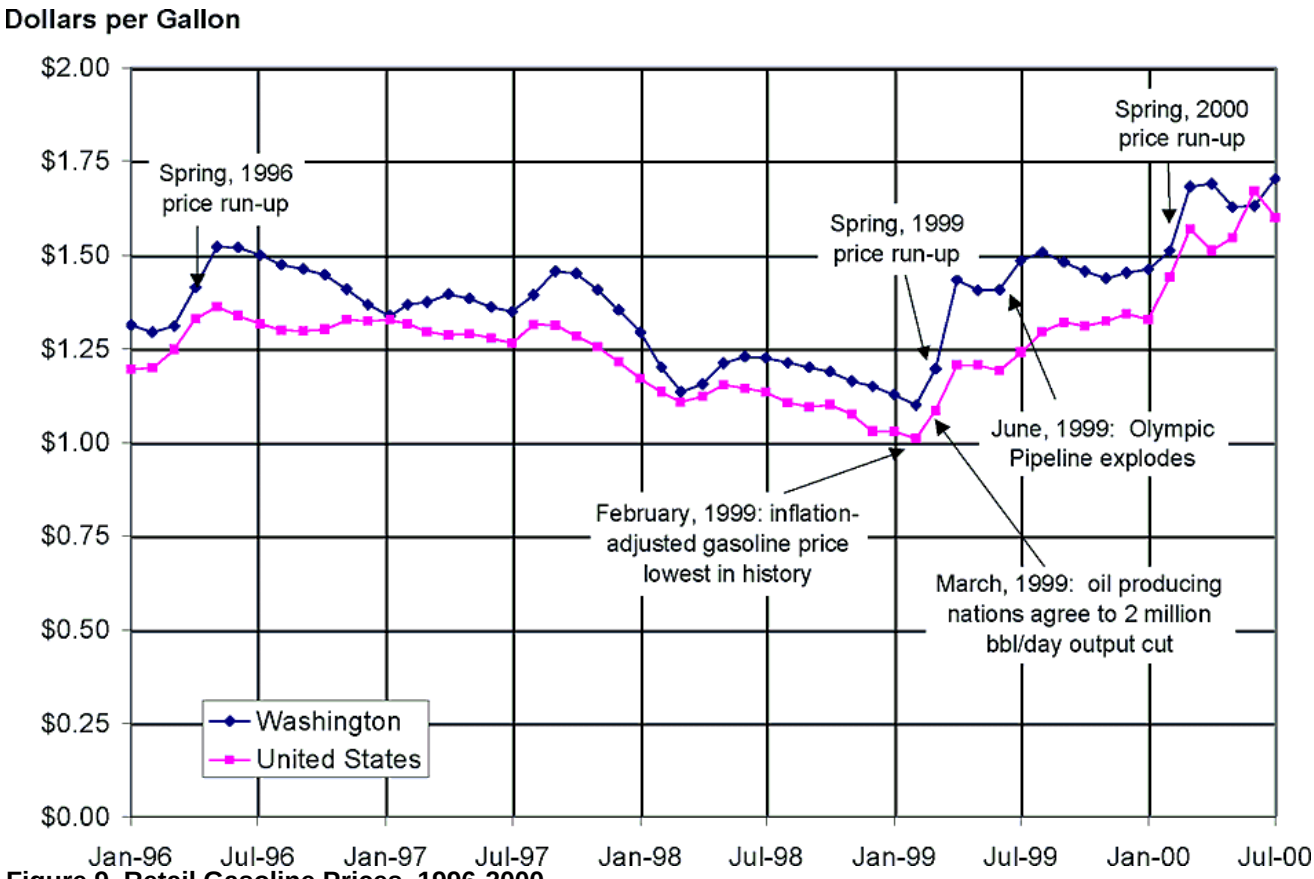

Figure 9 Retail Gasoline Prices, 1996-2000

Source: Energy Information Administration

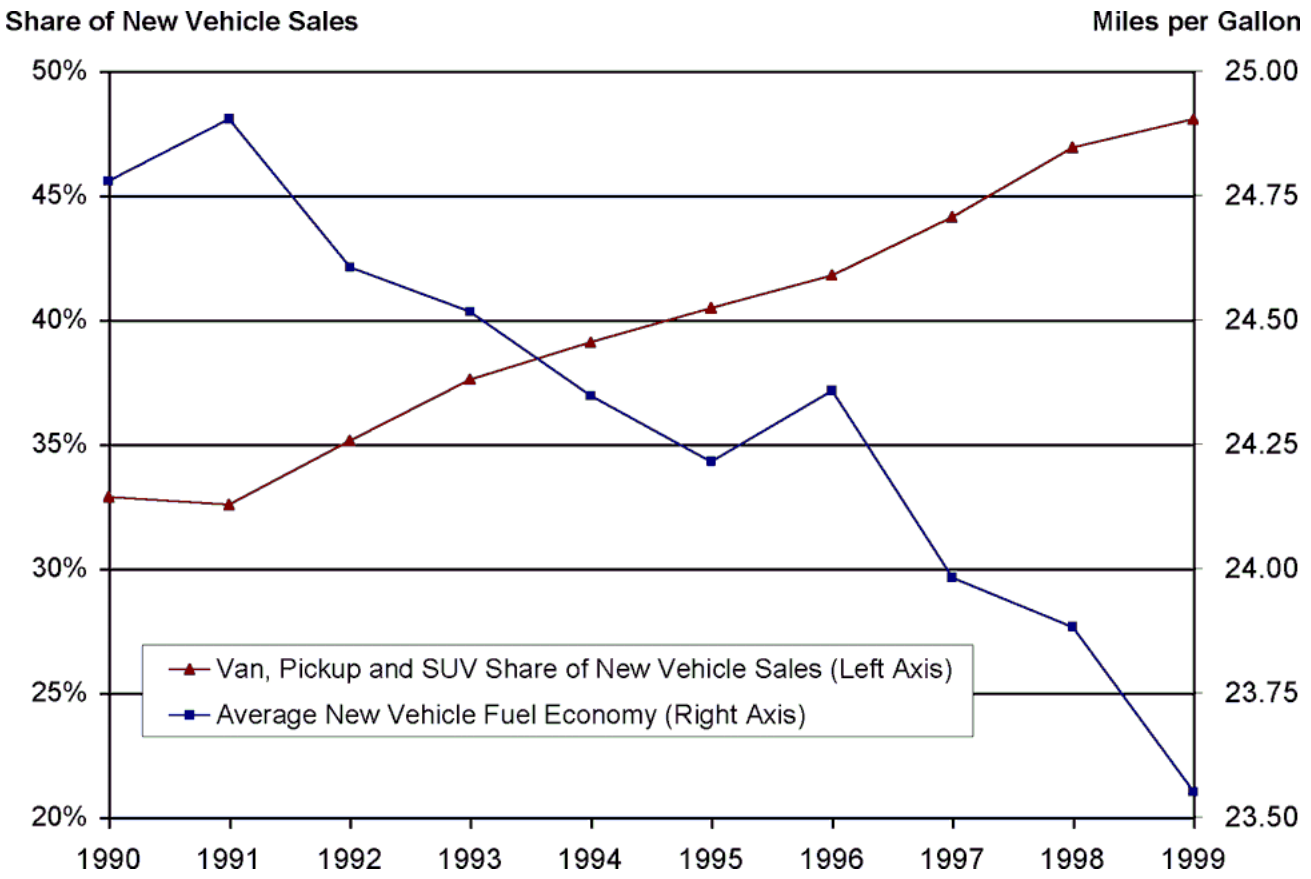

Figure 10 Light Truck Sales and New Vehicle Fuel Economy, 1990-1999

Source: Oak Ridge National Laboratory, Transportation Energy Data Book[2]

their stocks with expensive crude early in the season by purchasing as little as possible. Refining industry problems such as explosions or other forced outages frequently contribute to product shortages, especially in West Coast markets where refining margins are tight. This situation occurred in 1996, 1999, and 2000.

Prices of refined petroleum products in Washington increased further after the June 10, 1999, explosion of the Olympic Pipeline near Bellingham, though the effect appears to be relatively small. The Olympic Pipeline situation is discussed in more detail below.

While the U.S. economy as a whole is less dependent on oil, and hence less susceptible to oil price shocks than it was in the 1970s, American consumers may be more vulnerable at the end of the 1990s century than they have been in years. Low gasoline prices throughout the decade contributed to trends such as longer commutes, lower use of mass transit, and the increased popularity of large, inefficient vehicles such as minivans and sport utility vehicles. And lifestyle decisions like the choice of a vehicle or a home are not easily changed, which means that, in the short term, many Americans are simply stuck paying higher fuel prices. Figure 10 shows how increasing light truck sales in the United States have led to declining new vehicle fuel economies throughout the 1990s.

Crude oil prices

The root cause of higher gasoline prices can be found in the crude oil markets. In 1998, oversupply of crude oil due to recession in East Asia led to record-low crude oil prices. Oil-producing nations responded by announcing in March of 1999 that they had agreed to a two million barrel per day cut in output, reducing global crude supply by some 5%. This marked the first time in over a decade that the Organization of Petroleum

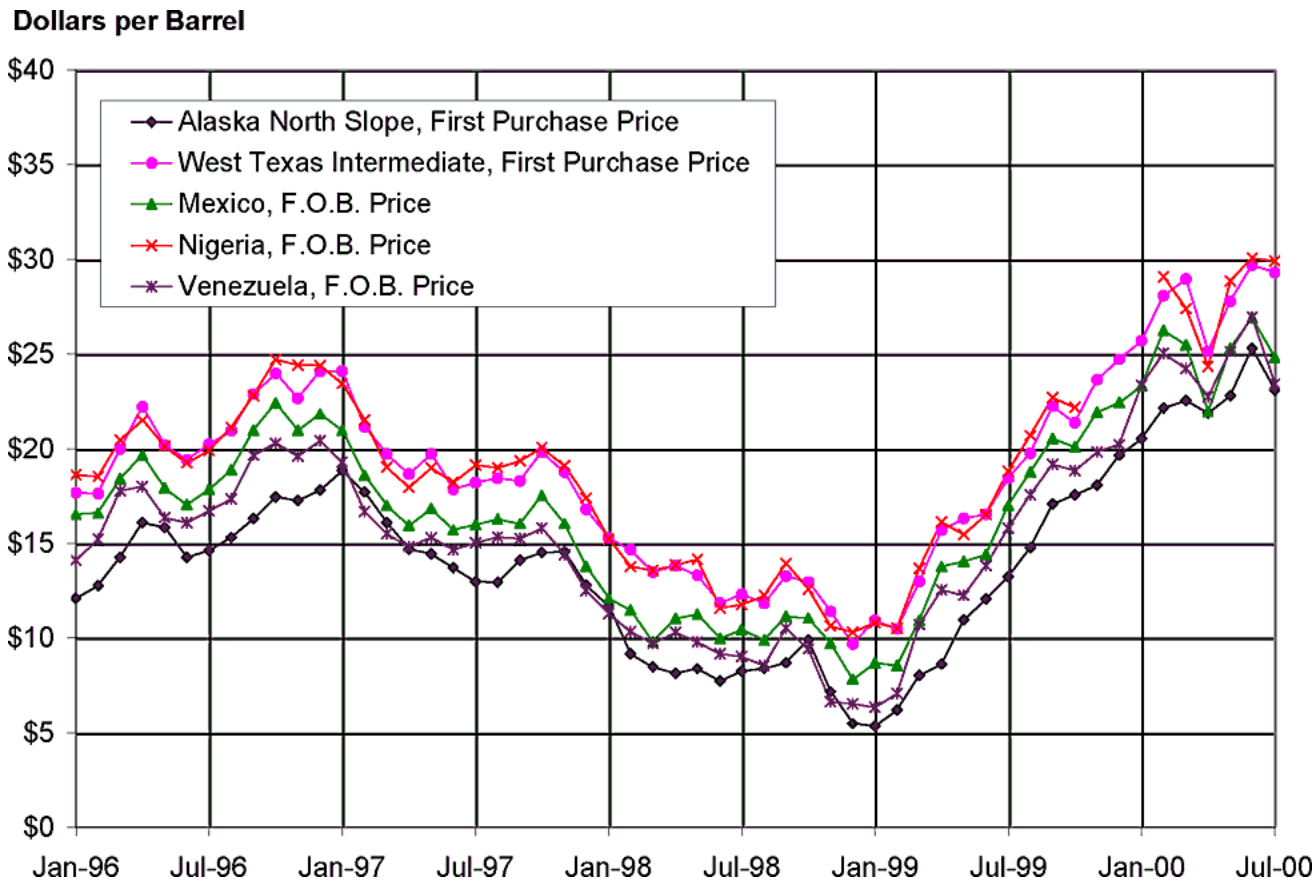

Figure 11 Crude Oil Prices Paid by US Refiners, 1996-2000

Source: Energy Information Administration, Petroleum Marketing Monthly

Exporting Countries (OPEC) had been able to exert real influence on global oil markets, and the first time ever that non-OPEC producers such as Mexico and Norway had gone along. At the same time, world crude oil demand had begun to recover as Asian economies emerged from two years of recession.

The result of these and other events, as demonstrated in Figure 10, was a dramatic increase in the price of crude oil over the next several months. The average price paid for a barrel of the benchmark West Texas Intermediate crude doubled from $10.49 in February 1999, to $22.23 in September, while the price of a barrel of Alaska North Slope crude tripled from $5.34 in January to $17.10 in September. Despite the higher prices, OPEC ministers decided at a September 1999 meeting to maintain existing levels of production at least until March 2000.

January and February of 2000 saw shortages of heating oil in the Northeast due to severe winter storms. Combined with general tightness in product markets, this drove spot prices for No. 2 distillate to the unprecedented level of $1.77 per gallon on February 4, 2000. However, heating oil customers outside the Northeast were largely unaffected, as the shortages were very localized. The high prices prompted President Clinton to announce the release of $125 million in additional federal government assistance for low-income households hit by high heating oil prices.

Crude prices dropped by some $5 per barrel in April after OPEC agreed to increase production by 1.5 million barrels per day, but jumped back up after low gasoline inventories and the premature introduction of new fuel standards led to skyrocketing gasoline prices in the Midwest in May and June. Crude oil and gasoline prices have trended higher since June, with West Texas intermediate crude generally trading between $30 and $35 per barrel. Prices dipped briefly in October after President Clinton announced that the government would release 30 million barrels

from the Strategic Petroleum Reserve, but regained previous levels within a few weeks.

Besides indicating the extent of crude oil price volatility in recent years, Figure 11 demonstrates another interesting fact about crude oil markets. While national policy-makers like to focus on the distinction between domestic and imported crude, this figure shows that the prices actually paid by U.S. refiners for domestic crudes like Alaska North Slope and West Texas Intermediate rise and fall in lockstep with the prices paid for imported crudes.[3] This ought to be intuitive; more than perhaps any other commodity, crude oil trades in a global market where the primary factors affecting price are quality and the cost and availability of transportation. This means that initiatives to encourage domestic production of crude oil will have little, if any, consumer benefit, since they are unlikely to result in enough new supply to affect prices in the 80 million-barrel per day world market.

Supply effects of Olympic Pipeline explosion

On June 10, 1999, the Olympic Pipeline ruptured near Bellingham, Washington resulting in a series of explosions which killed three people and shut down the pipeline. The 16-inch diameter pipeline carries petroleum products south from the BP Amoco (previously ARCO) refinery at Cherry Point and the Tosco refinery in Ferndale. The pipe joins a 20-inch line that carries petroleum products from the Equilon and Tesoro refineries near Anacortes. South of Anacortes, the pipe is capable of carrying 330,000 barrels per day of refined petroleum products, or some 60% of the output of the four refineries. The pipeline then runs 400 miles to Portland, Oregon with terminals in Bayview, Renton, Seattle, SeaTac, Tacoma, Spanaway, Olympia, Vancouver, Linnton, and Portland. See Figure 12 for a map of petroleum pipelines and refineries in Washington. The section of pipeline between Ferndale and the terminal south of Anacortes has remained closed since the incident, cutting off the BP Amoco and Tosco refineries from downstream markets. The Equilon and Tesoro refineries still have access to the pipeline and are relatively unaffected by the incident.

While sporadic shortages of premium grades of gasoline were reported in the weeks following the incident, the region did not suffer any major supply disruptions. The industry's response has included increased ship, barge, and truck transportation of refined products and exchange agreements between refineries so that pipeline product supplied by refineries in Anacortes can be traded with another company's product delivered to other locations by barge or truck. Gasoline is being barged to Harbor Island to supply the Seattle area, to Tacoma, and to Portland, which until the incident relied on the Olympic Pipeline for the majority of the fuel supplied to the area. BP Amoco, the largest refinery in the Northwest, has been running at about 70% of capacity since the incident; tanker shipments of refined products from California refineries to Portland appear to be making up the difference.

The most worrisome supply issue associated with the incident was the continued ability of SeaTac airport to receive jet fuel. SeaTac is supplied solely by the pipeline and is not set up to receive fuel from any other source such as tank trucks. SeaTac uses about 36,000 barrels per day of jet fuel, most of which is supplied by BP Amoco. BP Amoco has been able to continue to supply SeaTac by barging jet fuel to a terminal at Anacortes, where it is pumped into the Olympic Pipeline. However, SeaTac has had to reduce the amount of fuel normally stored on site.

The effect of the supply disruption on fuel prices appears to have been minimal. Washington prices were already high after a larger than normal springtime increase. Prices reportedly spiked in some areas immediately after the explosion, and the average price paid for gasoline in Washington increased from $1.41 per gallon in June of 1999 to $1.48 per gallon in July. However, crude oil prices were rising rapidly at that time, and the national average gasoline price rose 5¢ during the same period. Washington prices peaked at $1.52 in August

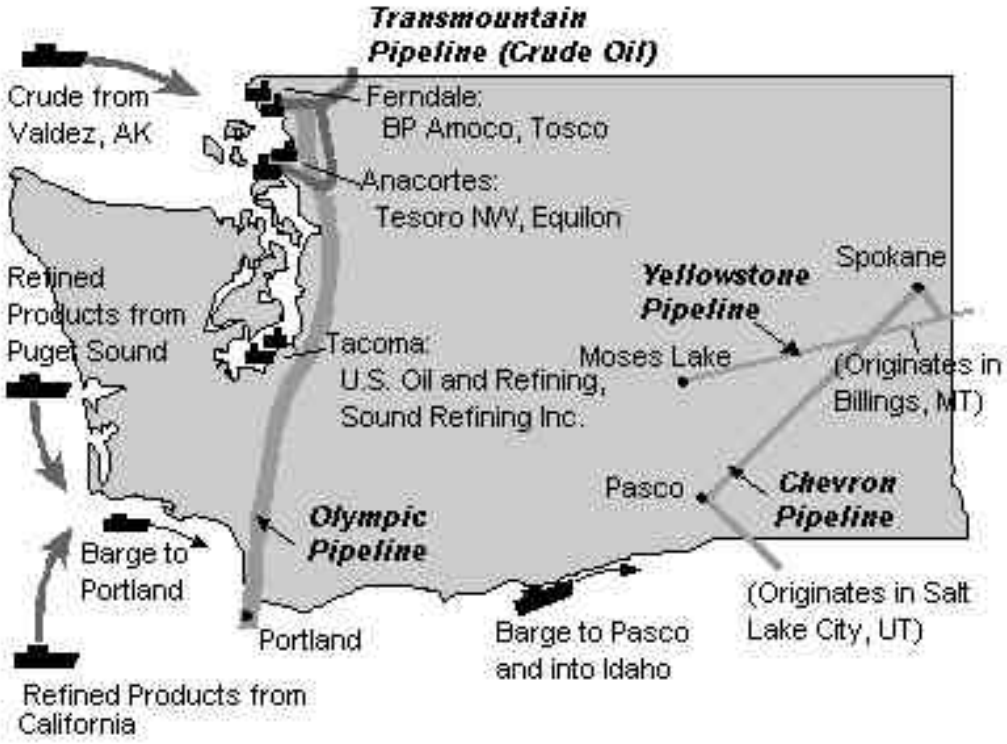

Figure 12 Petroleum Pipelines and Refineries in Washington

Source: Petroleum Industry Maps

before drifting downward to $1.44 by November, while national prices continued to increase through December.[4]

It is unclear when the pipeline will be able to resume normal operations. The pipeline failed a pressure test conducted in September 1999, and additional defects similar to those that caused the Bellingham rupture have been found near Kelso. BP Amoco took over operation of the pipeline from Equilon in June 2000, and appointed a new board of directors. The pipeline is co-owned by BP Amoco (37.5%), Equilon (37.5%) and GATX (25%). Meanwhile, the federal criminal investigation is continuing with no indication of when it may wrap up. The company is currently targeting the middle of 2001 for start-up, pending regulatory approval. The pipeline would operate at 70% capacity for two weeks, and 80% for one year. If no problems are encountered, the pipeline would go back to 100% sometime in 2002.

Oil Company Mergers

The last few years have seen a multitude of mergers among giant oil companies, many of them affecting companies that operate in Washington. The primary trend has been one of companies with different regional strengths merging to expand their reach to new parts of the country. However, some of the proposed mergers have raised antitrust concerns, both at the Federal Trade Commission (FTC) and with Washington's Attorney General. If completed, the recent mergers will mean that each of Washington's four largest refineries will have changed hands since 1993.

The most problematic from Washington's point of view was the merger between BP Amoco and Atlantic Richfield Company, or ARCO. BP and Amoco completed their $53 billion merger in January of 1999. Two months later, the new company announced its intention to acquire ARCO for $26.6 billion in stock. The move raised red flags in Washington because the combined company would control 75% of the Alaska North Slope crude oil supply. Washington, Oregon,

California and the FTC settled with the companies in April 2000, after the companies made major concessions, including the sale of all of ARCO's interest on the Alaska North Slope to Phillips Petroleum. BP had already sold its Ferndale refinery and retail outlets in Washington to Tosco in 1996. Tosco is in the process of re-branding its BP stations with the "Union 76" brand. Existing ARCO and Amoco stations in Washington will eventually carry the BP brand.

Washington, Oregon, and California also intervened in the $80 billion merger of Exxon and Mobil, which was approved by the FTC in November 1999. The companies agreed to sell over 2,400 retail outlets, mostly in the Northeast, Texas, and California, and a refinery in California. A little further from home, the French and Belgian company TotalFina, created by a 1999 merger of the French company Total and the Belgian Petrofina, purchased France's Elf Aquitaine for $43 billion, and became TotalFinaElf.

The most recent proposed merger activity is Chevron's October 2000, announcement that it would purchase Texaco for $34 billion. This merger will likely face similar scrutiny as the BP Amoco-ARCO and Exxon-Mobil deals, as the combined company would control about 36% of the retail market in Washington, Oregon, California, Arizona, and Nevada, along with about one-third of the refinery capacity on the West Coast. Texaco was already involved in a 1998 merger in which it combined its downstream operations in the U.S. with Shell to form Equilon. Equilon operates the former Texaco refinery in Anacortes and retail stations branded as either Texaco or Shell. To gain approval of that deal, Shell sold its Anacortes refinery to Tesoro. Table 5 lists the changes in refinery ownership since 1993.

Current Owner	Previous Owner	Ownership Details	Location	Capacity (bbl/day)[5]
BP	ARCO	BP Amoco merged with ARCO in 2000	Cherry Point	222,720
Equilon, may soon be owned by Chevron	Texaco	Texaco and Shell merged downstream operations in 1998 to create Equilon. Texaco agreed in 2000 to be purchased by Chevron.	Anacortes	142,000
Tesoro	Shell	Sold by Shell to Tesoro in 1998 when Texaco and Shell merged their downstream operations to form Equilon.	Anacortes	107,500
Tosco	BP	The plant was originally owned by Mobil Oil Corp, was sold to BP Oil Corp in 1988, and then sold in 1993 to Tosco Northwest Co.	Ferndale	88,500
U.S. Oil and Refining			Tacoma	30,800

Table 5 Washington Refinery Ownership

Source: Energy Information Administration, Petroleum Supply Annual

[1] Sources for the chronology of market events discussed in this chapter include wire services, newspapers, and the Energy Information Administration's *World Oil Market and Oil Price Chronologies*, http://www.eia.doe.gov/emeu/cabs/monchron.html.

[2] Oak Ridge National Laboratory, Transportation Energy Data Book 20, November, 2000. ORNL-6959 (Edition 20 of ORNL 5198), http://www-cta.ornl.gov/data/tedb20.

[3] The actual prices for different crude streams can vary for a number of reasons, chief among them the quality of the crude (e.g., sulfur content, specific gravity, etc.) and the cost of transportation to refineries that are configured to process that type of crude. The price of Alaska North Slope crude, for example, is typically lower than other crudes because it is a medium-weight, high-sulfur crude in a very remote location. However, the price *trends* are nearly identical for all crudes over periods of several months or more, a demonstration of the fungibility of crude oil in world markets.

[4] Energy Information Administration, Petroleum Marketing Monthly, http://www.eia.doe.gov/oil_gas/petroleum/data_publications/petroleum_marketing_monthly/pmm.html.

[5] Energy Information Administration, Petroleum Supply Annual, http://www.eia.doe.gov/oil_gas/petroleum/data_publications/petroleum_supply_annual/psa_volume1/psa_volume1.html.